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ABSTRACT

Research on the use of knowledge resources in school improvement efforts explores the ways in which new ideas, programs, practices, materials, and technologies become incorporated into the operations of the nation's elementary and secondary schools, and examines the changes these organizations undergo in the process. Attempts at disseminating research findings and implementing programs based on those findings have revealed many problems that can only be resolved with adequate research on knowledge use. This research concentrates on four major topics: the change process that occurs when innovations are attempted; the mobilization period preceding implementation of new programs; the contextual influences affecting implementation; and the ways in which externally-generated knowledge enters the school environment. This discussion of the current state of research on knowledge use includes descriptions of 10 active projects funded by grants from the National Institute of Education and concludes with brief analyses of three areas that will receive emphasis in the future. (Author/PGD)

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DISCUSSION

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KNOWLEDGE USE AND SCHOOL IMPROVEMENT

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Overview

Schools and school districts will continue to face pressing educational problems and changing social and fiscal realities requiring adaptive action. Meeting such demands purely locally by inventing and trying out suitable responses in isolation from others is likely to be beyond the shrinking resources of many districts. In fact, service and technical assistance units in governmental, academic and private organizations can provide information and expertise on an as-needed basis, and in some instances schools have collaborated in improvement efforts. The questions arising for assisting organizations and schools are: How can one most effectively develop and implement the necessary programs so that local initiative and motivation are preserved, disruptions are minimal, unforeseen and undesirable consequences held to a minimum? And what kinds of assistance are appropriate under a given set of circumstances?

The research area on Knowledge Use and School Improvement is designed to contribute to the answers to these questions. It explores how knowledge resources in the form of new ideas, programs, practices, materials and technologies become incorporated into the operations of the nation's elementary and secondary schools, and what changes these organizations undergo in the process. This is what is meant by research on knowledge use.

The research area is built principally around a research grants program that has made ten awards to date (see below), with another small number pending. While tentative plans for a future competition exist, no binding decision has been made by the Institute to date. Work undertaken as part of the research area's development has resulted in a book, and discussions are underway regarding publication of two sets of papers, one methodological, the other substantive. All are listed in the Attachment.

Major Problems and Issues

During the past two decades, governmental and private agencies have expended considerable effort and resources in studying the nature of educational processes, with the aim of eventually improving them. The federal government, responding to Congressional mandates, had assumed a strong leadership role in this research, providing both direction and funding. It soon became evident that producing research results, and developing materials and products that incorporated their findings, did not automatically or even frequently lead to applying what had been learned in actual school practice, let alone improving education. A stress on disseminating the new knowledge resulted, and federal programs were soon joined by those of states, foundations, and academic institutions. More than one observer has suggested the underlying image of a production-consumption system: Research developing new knowledge that would be disseminated to schools for consumption and use. All too frequently, though, the diet did not go down well -- the difference between the dissemination and adoption of a new practice and its actual and productive use was being learned, and results of studies of the characteristics of early adopters of innovations provided few answers to the resulting questions. Instead, research results accumulating over several years suggested:

- Changing school practices involves sometimes far-reaching organizational and personal adjustments;
- the power of new knowledge to bring about such changes is more limited than had been assumed;
- the motivations and aims of school staff critically affect the uses of externally produced knowledge resources;
- the school's organizational features and context powerfully influence and shape any improvement efforts;
- undesired and unexpected side effects of school improvement efforts may develop and undermine their effectiveness;
- school improvement policies and programs must be considered against the backdrop of normal daily operations, which they disturb. From this view, even the most desirable new programs entail monetary and nonmonetary costs that can influence their development and its ultimate potential benefits.

Similar conclusions, allowing for differences in the setting, are evident from reviewing the results of research on innovation and change in a number of other fields such as health care, agriculture, private industry, and the provision of urban services.

Research Topics

Four broad topics summarize the approach taken by the Knowledge Use research area. In each, the core focus is on exploring the actual and potential contributions of knowledge resources in improving the educational practices and services of schools.

The Change Process: As noted, changes in organizational and personal behavior are often required when a new program or practice is brought into a school's daily operations. The initial mobilization of energies, commitment, and resources; the nature of the program in question, its development and implementation; and the program's subsequent staying power and effectiveness are related in important ways, with earlier events and decisions providing the boundaries of probable later choices, events, and results. Such changes do not move mechanically from phase to phase and will not be entirely predictable even with the best of understanding. However, major regularities can surely be understood, and knowledge of their nature can provide valuable guidance in the development and implementation of improvement programs, wherever initiated.

Mobilization: This term covers the initial phase of a change, when school staff consider and prepare for an improvement program, whether to be locally developed or drawn from outside the school or district. Whether there is a problem requiring correction, what its nature is, whether it requires incremental or more sweeping action, which course to pursue, and how to develop and

sustain staff support are among the issues arising during this phase (and continuing to be faced, in many instances, throughout the project duration). Evidence strongly suggests the importance of this phase for subsequent ones and final results, and more detailed knowledge of its dynamics is desirable, even though the methodological and logistical problems of studying it are considerable.

Contextual Influences: Increasingly, scholars of innovation and change are stressing the importance of "knowing the territory" before attempting to introduce changes. The view that different policy contexts — school settings, program types — may require different policy initiatives and approaches is gaining broad currency, although it is not universally accepted. Which particular context and program features are critical to success in given situations has not been empirically established, and even many conceptual underpinnings of such a contingency approach remain to be worked out.

-Knowledge Acquisition and Use: Schools as organizations and educators working in them do, of course, acquire and use knowledge resources in their daily work and apply them in their efforts to improve educational services. Yet we know surprisingly little about schools' internal information environments — how external knowledge enters and from what sources; how it interplays with knowledge already available in the school; and how it is communicated, assessed, and transformed so it can be usefully employed. Studies of information acquisition and flow in research laboratories, industrial firms and other settings come to mind, but these have few counterparts examining school settings.

The program initially had a topic area specifically targeted to methodological issues in knowledge use research — what constitutes use, how to measure it, what design issues to consider in this kind of research, etc. The initial set of projects, together with the set of methodological papers already mentioned, sufficiently address these basic issues, so that they now are best pursued in the context of specific substantively oriented studies.

Lessons From the Competitions

Several lessons can be drawn from the submissions received by the program and from conversations with potential and actual applicants. The research solicited under the program frequently draws proposals for the demonstration or evaluation of a specific program in a specific site, both of which are ineligible. Furthermore, too many proposals fail to make the transition between laying out a problem and devising a convincing and reasonably complete research design with which to tackle it.

Substantively, there is a surprising paucity of studies proposing to examine multi-program interactions. As noted above, there is also very little work that explicitly takes a contingency approach. For example, what can one empirically determine about the appropriateness of directed-development, high-fidelity approaches as opposed to local-development, local-adaptation approaches in particular settings? Relatively few proposals deal directly with the work incentives of school personnel and those with whom they interact during a change effort, and the effects of these incentives on program outcomes.

Active Projects

Of the ten active projects, two are small grants; two have methodological topics; several others have strong methodological components. For each project, contact information is provided to allow interested persons to communicate directly with the investigators.

Knowledge Use in Urban Elementary Schools; Marianne Amarell and Edward Chittenden; grant NIE-G-81-0028, 2-1981 through 4-1982. This study of reading and language competency programs in 6 urban elementary schools explores how external knowledge is modified by classroom and school life experiences of teachers and administrators. Reading improvement programs designed principally for poor and minority children will be the specific focus. An existing ETS data base is being supplemented with additional information deriving from classroom observations, teacher and administrator interviews during site visits, and records of analyses of student reading tapes by teachers. (Write to: ETS, Rosedale Road, Princeton, NJ 08541.)

A Conceptualization of the Interface Between Teachers' Practical Knowledge and Theoretical Knowledge in Effecting Board Policy; Michael Connelly; grant NIE-G-81-0020, 2-1981 through 2-1983. Set in Toronto inner-city schools, the project focuses on the Board's Race Relations Policy. It seeks to gain insight into the practical knowledge and reasoning of urban teachers in multi-ethnic schools in the context of the policy and curriculum programs for ethnic equality and opportunity; identify and conceptualize the form and content of the 'translated theoretical knowledge' embodied in the policy and curricula, as this knowledge appears to school personnel; to clarify the interplay of this 'theoretical knowledge' with the practical knowledge of school staff; and to work out dialectical methods of school reform that preserve the integrity of school staff and contribute to their professional development. (Write to: OISE, 252 Bloor St. West, Toronto, Ontario, M5S 1V6, Canada.)

Practice Improvement — The Practitioners' Perspective; Eleanor Farrar and David Cohen; grant NIE-G-81-0017, 2-1981 through 1-1983. The nature of information teachers and administrators believe they need in relation to compensatory education programs operating in their schools is explored in twelve mostly urban elementary and secondary schools. The study will describe how practitioners' beliefs and perceptions are shaped by their work and its setting, including the nature of the improvement program itself, social and other aspects of school life, and generic aspects of classroom practice. The results of extensive interviews will be interpreted in light of theoretical perspectives drawn from work on the sociology of school and classroom, decisionmaking, and accounts of teachers' work lives. (Write to: Huron Institute, 123 Mt. Auburn St., Cambridge MA 02138.)

The Realities of School Improvement Programs — Analysis of Quantitative Data; Matthew Miles (in collaboration with Michael Huberman); grant NIE-G-81-0018, 1-81 through 9-82. How do school staff deal with innovative programs over time and become more skillful in their use? How do the programs themselves change in the process? How do they become durably and successfully established? How do personal motives, incentives, and career interests influence the fate of these programs? The data base consists of interview and observation data originally collected by the investigators as part of a study of federally funded dissemination programs, here subjected to

more extensive analysis. Data are available for twelve elementary and secondary schools and will be supplemented during the course of the study by contacts with teachers and administrators at each site. A methodological component deals with methods of effectively and fruitfully analyzing data bases of the kind used in this study. (Write to: Center for Policy Research, 475 Riverside Dr., New York NY 10115.)

Knowledge Use in Staff-Initiated School Improvement; William Genova; grant NIE-G-81-0025, 2-1981 through 6-1983. This is a study of locally-initiated staff development projects and their uses of available knowledge resources. It explores how teachers' and administrators' needs for effectiveness, affiliation, and control interact with their perceptions of the need for improvements and the feasibility of bringing them about; and it seeks to relate the interplay of these factors to modes of knowledge use. Data will be gathered in eighty sites with already-completed projects, forty sites with currently active staff development projects, and twenty sites without such projects. All sites are located in Massachusetts. (write to: TDR Associates Inc., 385 Elliott St., Newton MA 02164.)

The Development of Knowledge Use Capacity in School Districts' Programs for Young Handicapped Children; Ronald Wiegerink; grant NIE-G-81-0015. The principal study question, just what constitutes a school district's capacity for knowledge use, is explored by asking: What influences its ability to obtain and use knowledge resources in developing more effective programs? What role do district-internal resources and procedures play in this? How do external factors and initiatives play? What knowledge gaps are encountered by school staff during program development? Half of the 24 districts are located in high-support states, the other in low-support ones. Twelve sites will be studied intensively over time. In addition to substantive findings, the project will produce a set of instruments for assessing knowledge use capacity in school districts. (Write to: School of Education, Childhood Development and Behavioral Science, University of North Carolina, Suite 300, NCNB Plaza, Chapel Hill NC 27514.)

Teacher Reflections on Classroom Life — An Empirical Base for Professional Development; Mary-Louise Holly; small grant NIE-81-0014. The investigator and a group of teachers reflect on the teachers' work situations in the context of an inservice staff development project. Diaries kept over a one-year period form the basis of a continuing seminar. Questions addressed include work problems and satisfactions; events and characteristics of the work that have particular influence on teachers' work; ways in which activities and courses intended to help teachers do so or fail; and ways in which teachers assist each other. Implications for professional development projects will be drawn. (Write to: Kent State University, 233 Lowry Hall, Kent OH 44242.)

Knowledge Utilization and Program Outcomes in Two Organizational School Improvement Networks; Roger Collins; small grant NIE-G-81-0023, 1-1981 through 3-1982. Two school improvement networks formed on the basis of court mandate in the course of the Boston desegregation case are studied to describe their structure and operations; how these in turn influence the nature of the knowledge transfer and use activities in the networks; and what results occur in terms of program outcomes. Each network consists of a university, a school, and an associated parent-community council and seeks to establish an integrated student leadership program. Data sources include observation, interviews, and documents.

Methodological Research on Knowledge Use and School Improvement; William Dunn and Burkart Holzner; grant NIE-G-81-0019. The investigators seek to clear up some methodological and conceptual muddles at the core of research on knowledge use. What is 'use' under a variety of circumstances? What influences perceptions of knowledge relevance, cogency, and adequacy? How can decisions regarding knowledge use or nonuse be measured? Instruments will be developed, along with a taxonomy of the dimensions of knowledge-in-use and the standards used by school personnel to assess such knowledge, and with procedures for analyzing teachers' and administrators' decisions regarding knowledge use in daily educational operations. A measurement handbook; a paper on the taxonomy; another on a decision-focused approach to examining schools' knowledge use; and a number of working papers are anticipated. (Write to: University of Pittsburgh, Research Office, 1028 Cathedral of Learning, Pittsburgh PA 15260.)

Evidence and Conclusion in Knowledge Utilization Research; Robert Yin; grant NIE-G-81-0016, 2-1981 through 7-1982. This methodological study examines ten to twelve recent or current knowledge utilization studies to determine: type of knowledge utilization network being studied — personal, organizational, or mixed; and the methodological aspects of the study — units of analysis, sampling, types of evidence used. The work arises from the conviction that differences in types of knowledge utilization networks have not been properly recognized in choices of methodology. The aim is to delineate current practice and suggest methodological guideposts for future work. Data derive from documents and interviews with investigators. A case method is employed. (Write to: Abt Associates Inc., 1527 New Hampshire Ave. NW, Washington DC 20036.)

Future Plans

Existing program plans contain a number of future activities in this research area. In addition to the future competition or competitions already mentioned, These include:

- A review of the entire research area to determine the collective quality of the supported work, the coverage it provides of important research topics, and the advancement of our understanding it provides. This will not take place in isolation, but will consider contributions from pertinent studies funded elsewhere and focusing on education and other service areas. The aim is to assess whether this research program should be continued in substantially its present form, redirected, or terminated.

- Preparation of a review work of the field's progress, drawing principally but not exclusively on studies in education. The results and findings from individual projects are customarily published in journals or as monographs, whereas this review would attempt an assessment of the state of the art at this future time, for both research and research planning purposes.

- Translation and dissemination of the research findings for policy and practitioner audiences, including school personnel, those assisting in planning and implementing school improvement programs, and policymakers and program managers. Presenting results and conclusions to these diverse groups with very different information requirements will present a major test of how well REP has learned the lessons of its own research.

ATTACHMENT

Lehming, Rolf and Michael Kane, eds., Improving Schools: Using What We Know; Beverly Hills, Sage Publishing, 1981 (with contributions by Ernest House, Matthew Miles, Sam Sieber, Karen Louis, Michael Fullan and Paul Berman)

Bateman, Peter and Robert Yin, Targeting Educational Improvement Resources; 3-1981 *

Huberman, Michael, Finding and Using Recipes for Busy Kitchens: A Situational Analysis of Routine Knowledge Use in Schools; 12-1980 *

Feller, Irwin, A Comparison of Innovation Processes in Public Schools and Other Public Sector Organizations; 5-1981 *

Meyer, John W., The Impact of the Organizational Structure of American Public Education on Innovation and Knowledge Use; 5-1981 *

Mitroff, Ian I., The Fantasy of Certainty: How Education Seeks to Obtain Firm Knowledge From Shaky Assumptions; 4-1981 *

Rich, Robert F. and Neal M. Goldsmith, Forms and Aspects of Knowledge Use Which Influence Its Use; 7-1981 *

Walker, Warren E. and Jan M. Chaiken, The Effects of Fiscal Contraction On Innovation in the Public Sector; 4-1981 *

Yin, Robert K., New Approaches to the Problem of Improving Educational Practice Through New Ideas; 7-1981 *

Andrews, Steve, KU in Context: Suggestions Towards a Mapping; 11-1981 *

Hall, Gene E., Issues in Analyzing Change Process Outcomes; 11-1981 *

Larsen, Judith K., Knowledge Use Outcomes; 5-1981 *

Rich, Robert F. with Neal M. Goldsmith, Measuring Knowledge Utilization; 7-1981 *

* Publication plans pending for these papers; they either are, or will shortly be, available through the ERIC system.